

# **Request for Bid**

**Fixed-Price Defined Scope of Work**

**Complete Site Characterization, Reporting, Demonstrating Cleanup to Risk-Based Site Specific Standards & Case Closure**

## **Solicitor**

**Mr. Stephen Bell, Corporate Vice President**

**Northwest Bank  
(Former Clarion Gulf)**

**730 Main Street  
Clarion, Clarion County, PA 16214**

**PADEP Facility ID #: 16-13642      PAUSTIF Claim #: 20090013(I)**

## **Date of Issuance**

**March 20, 2023**

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The Pennsylvania Underground Storage Tank Indemnification Fund (PAUSTIF), on behalf of the claimant who hereafter is referred to as the Client or Solicitor, is providing this Request for Bid (RFB) to prepare and submit a bid to complete the Scope of Work (SOW) for the referenced Site. The Solicitor is the owner of the Site. PAUSTIF has determined that the claim reported by the Solicitor is eligible for coverage from the PAUSTIF subject to the applicable statutes and regulations. Reimbursement of Solicitor approved reasonable and necessary costs, not to exceed the claim aggregate limit, for the corrective action work described in this RFB will be provided by PAUSTIF.

Each bid response will be considered individually and consistent with the evaluation process described in the PAUSTIF Competitive Bidding Fact Sheet which can be downloaded from the PAUSTIF website <https://ustif.pa.gov>.

## Calendar of Events

<b>Activity</b>	<b>Date and Time</b>
Notification of Intent to Attend Site Visit	Friday, April 7, 2023 by 5 p.m.
Mandatory Pre-Bid Site Visit	Tuesday, April 11, 2023 at 11a.m.
Deadline to Submit Questions	Friday, May 12, 2023 by 5 p.m.
Bid Due Date and Time	Friday, May 19, 2023 by 3 p.m.

## Contact Information

Technical Contact
<p><b>Mr. Joseph Ozog, Jr., P.G.</b> <b>Excalibur Group, LLC</b> <b>91 Park Avenue</b> <b>Windber, PA 15963</b> <b>O: 814-467-6359</b> <b>joeozog@excaliburgrpllc.com</b></p>

All questions regarding this RFB and the subject Site conditions must be directed via email to the Technical Contact identified above with the understanding that all questions and answers will be provided to all bidders. The email subject line must be **“Northwest Bank, Claim #20090013(I) – RFB QUESTION”**. Bidders must neither contact nor discuss this RFB with the Solicitor, PAUSTIF, the Pennsylvania Department of Environmental Protection (PADEP), or ICF unless approved by the Technical Contact. Bidders may discuss this RFB with subcontractors and vendors to the extent required for preparing the bid response. Questions and their respective answers will become part of the RFB, which in turn, will become part of the final contract. Bidders are responsible to monitor questions and answers and address any changes, modifications or clarifications made to the RFB as a result of the questions and answers.

## Requirements

### Mandatory Pre-Bid Site Meeting

On behalf of the Solicitor, the Technical Contact, or their designee will hold a mandatory Site visit on the date listed in the Calendar of Events to conduct a Site tour for one (1) participant per bidding company. The Technical Contact will collect questions and respond via email. All questions and answers will be provided via email to all attendees. This meeting is mandatory for all bidders, no exceptions. This meeting will allow each bidding company to inspect the Site and evaluate Site conditions. **A notice of the bidder's intent to attend this meeting is requested to be provided to the Technical Contact via email by the date listed in the Calendar of Events with the subject line, "Northwest Bank, Claim #20090013(I) – SITE MEETING ATTENDANCE NOTIFICATION"**. The name and contact information of the company participant should be included in the body of the email. Notification of intent to attend is appreciated; however, it is not required. **Attendance at the Pre-Bid Site Meeting is mandatory, and each attendee must check in with the Technical Contact on site to record attendance.** Due to the circumstances surrounding the COVID-19 pandemic, all attendees should follow CDC safety guidelines. Changes to the Site meeting date and/or time due to inclement weather conditions or other unexpected circumstances will be posted at <https://ustif.pa.gov/bids>; and the Technical Contact may notify via email all companies that provided Site Meeting Attendance Notification.

### Submission of Bids

To be considered for selection, an electronic .pdf version of the signed bid package must be submitted to RA-Bid-Submission@icf.com by the bid due date and time in the Calendar of Events. Bid cost spreadsheets may be submitted in Microsoft Excel format. File sizes in excess of 5 MB are to be submitted using a file share service of your choosing. If you do not have access to a file share service, an email must be sent to RA-Bid-Submission@icf.com, at least 24 hours prior to the bid due date and time, to request access to PAUSTIF's third party administrator (TPA), ICF, file share service. Reply messages will be sent to acknowledge receipt of emails. Bid responses will only be accepted from those companies that attended the Mandatory Pre-Bid Site Meeting. Bids attempted to be submitted through ground services such as USPS, UPS, Fed-Ex, etc. or hand delivery will not be considered for selection. PAUSTIF, in its discretion, reserves the right to reject or allow correction to bid submissions that are substantively deficient in some manner, but any late submission will be rejected.

**The bid must be received by 3 p.m., on the due date shown in the Calendar of Events.** Bids will be opened immediately after the 3 p.m. deadline on the due date. Any bids received after this due date and time will be returned. If, due to inclement weather, natural disaster, or any other cause, the deadline for submission may be extended. The PAUSTIF's third party administrator, ICF, may notify all companies that attended the Mandatory Pre-Bid Site Meeting of an extended due date. The hour for submission of bids shall remain the same.

## **Bid Requirements**

The Bid Submission Coversheet included as Attachment 1 to this RFB must be completed, signed by an authorized representative of the company, and included as the first page of the Bid Submission. Bids that are not signed may be rejected. The name and contact information of the person who is to be contacted in the event the bid is selected by the Solicitor must be listed on the Bid Submission Coversheet.

The Solicitor wishes to execute a mutually agreeable contract with the selected consultant ("Remediation Agreement"). The Remediation Agreement is included as Attachment 2 to this RFB. The bidder must indicate if the Remediation Agreement is accepted with no changes. If changes are proposed, bidder must identify and document proposed modifications to the Remediation Agreement language other than obvious modifications to fit this RFB (e.g., names, dates, and descriptions of milestones). The number and scope of any modifications to the standard agreement language must be listed on the Required Responses Submission Form (Attachment 3), including, but not limited to, terms and conditions, Exhibits A and B, Site-Specific Assumptions and Provisions; and, will be one of the criteria used to evaluate the bid and will need to be agreed upon by both the Solicitor and PAUSTIF (for funding).

The selected consultant will be provided an electronic copy of the draft Remediation Agreement in Microsoft Word format to allow agreement-specific information to be added. The selected consultant shall complete the agreement-specific portions of the draft Remediation Agreement and return the document to the Technical Contact within 10 business days from date of receipt.

The Remediation Agreement fixed costs shall be based on unit prices for labor, equipment, materials, subcontractors/vendors, and other direct costs. The total cost quoted in the bid by the selected consultant will be the maximum amount to be paid by the Solicitor unless a change in scope is authorized and determined to be reasonable and necessary. There may be deviations from and modifications to this SOW during the project. The Remediation Agreement states that any significant changes to the SOW will require approval by the Solicitor, PAUSTIF, and PADEP. NOTE: Any request for PAUSTIF reimbursement of the reasonable costs to repair or replace a well will be considered on a case-by-case basis.

The bidder must complete and include in their bid response the Required Responses Submission Form, included as Attachment 3 to this RFB.

The bidder shall provide its bid cost only in the Bid Cost Submission Form (included as Attachment 4) with descriptions for each task provided in the body of the bid document. No cost information should be provided in the technical submittal. Bidders are responsible to ensure all costs are provided in the Bid Cost Submission Form, and calculations (including, but not limited to the total bid cost) are accurate; the Bid Cost Submission Form must be signed by an authorized representative of the company. In addition, bidders are required to include, as backup for the Bid Cost Submission Form, a list of bid labor rates and a detailed breakdown of each milestone fixed-cost including, but not limited to, labor, subcontractor costs and mark-up, direct costs, and

equipment. Copies of subcontractor quotes and/or estimates should be included as part of the cost submittal backup. The technical score for bids will be based solely on those tasks represented as milestones included in the Bid Cost Submission Form and the total bid cost. Any optional bidder-defined tasks, milestones, or cost adders that are not requested as part of this RFB will not be considered by the Bid Evaluation Committee in the technical review and technical score for the bid.

Each bid will be assumed valid for a period of up to 180 days after receipt unless otherwise noted. The costs quoted in the Bid Cost Submission Form will be assumed valid for the duration of the Remediation Agreement.

Please note that the total fixed-price bid must include all costs, including those cost items that the bidder may regard as “variable”. These variable cost items will not be handled outside of the total fixed-price quoted for the SOW unless the RFB requests costing alternatives for specific items or services.

The RFB is requesting a total fixed-price bid unless the RFB requests costing alternatives for specific items or services. PAUSTIF will not agree to assumptions (in bids or the selected bidders executed Remediation Agreement) referencing a level of effort and/or hours. Costs provided in your bid should be developed using your professional opinion, experience, and the data provided. PAUSTIF will not reimburse costs for additional hours to complete activities included as part of the base bid/contract price.

Each bid response document must include at least the following:

1. Completed Bid Submission Coversheet (Attachment 1), Required Responses Submission Form (Attachment 3) and Bid Cost Submission Form (Attachment 4 and must include supporting documentation).
2. Demonstration of the bidder’s understanding of the Site information provided in this RFB, standard industry practices, and objectives of the project.
3. A clear description, specific details, and original language of how the proposed work scope will be completed for each milestone. The bid should specifically discuss all tasks that will be completed under the Remediation Agreement and what is included (e.g., explain groundwater purging/sampling methods, which guidance documents will be followed, what will be completed as part of the Site-specific work scope/revised Site Characterization Report/ Remedial Action Plan [SCR/ RAP] implementation). Bidders must bid the Scope of Work as requested in this RFB. Recommendations for changes/additions to the Scope of Work proposed in this RFB shall be discussed, quantified, and priced separately; however, failure to also bid the SOW “as is” may result in a low technical score. Bids should include enough original language conveying bidder’s thought such that the understanding of site conditions, closure approach (if applicable), and approach to addressing the scope of work can be evaluated. Since bidders are not prequalified, the

bid response must provide the Bid Evaluation Committee and Solicitor enough information to complete a thorough review of the bid and bidder.

4. A copy of an insurance certificate that shows the bidder's level of insurance consistent with the requirements of the Remediation Agreement. Note: The selected consultant shall submit evidence to the Solicitor before beginning work that they have procured and will maintain Workers Compensation, commercial general and contractual liability, commercial automobile liability, and professional liability insurance commensurate with the level stated in the Remediation Agreement and for the work to be performed.
5. The names and brief resumes and statement of qualifications of the proposed project team including the proposed Professional Geologist and Professional Engineer (if applicable) who will be responsible for overseeing the work and applying a professional seal to the project deliverables (including any major subcontractor(s)). Resumes should directly follow the Required Responses Submission Form.
6. A description of subcontractor involvement by task. Identify and describe the involvement and provide actual cost quotations/bids/proposals from all significant specialized subcontracted service (e.g., drilling/well installations, laboratory, etc.) as part of the bid cost submission back up. If a bidder chooses to prepare its bid without securing bids for specialty subcontract services, it does so at its own risk. Added costs resulting from bid errors, omissions, or faulty assumptions will not be considered for PAUSTIF reimbursement.
7. A detailed schedule of activities for completing the proposed SOW including reasonable assumptions regarding the timing and duration of Solicitor reviews (if any) needed to complete the SOW. Each bid must provide a schedule that begins with execution of the Remediation Agreement with the Solicitor and ends with completion of the final milestone proposed in this RFB. Schedules must also indicate the approximate start and end date of each of the tasks/milestones specified in the Scope of Work and indicate the timing of all proposed key milestone activities (e.g., within 30 days of the contract being executed).
8. A description of how the Solicitor, and the PAUSTIF (through their third party administrator) will be kept informed as to project progress and developments and how the Solicitor (or designee) will be informed of and participate in evaluating technical issues that may arise during this project.
9. A description of your approach to working with the PADEP. Describe how the PADEP would be involved proactively in the resolution of technical issues and how the PADEP case team will be kept informed of activities at the Site.
10. Key exceptions, assumptions, or special conditions applicable to the proposed SOW and/or used in formulating the proposed cost estimate. Key exceptions, assumptions, or special conditions that bidder proposes as modification to the Remediation Agreement



must be identified and listed on the Required Responses Submission Form (Attachment 3). Please note that referencing extremely narrow or unreasonable assumptions, special conditions, and exceptions will be considered during bid evaluation and may negatively impact technical score.

## Bid Review and Evaluation

### 1. Bid Review and Scoring

Bid submissions where the bidder was represented at the mandatory pre-bid site meeting and that were properly submitted by the designated due date and time will be accepted for review.

#### Clarification & Additional Information

After receipt of the bids, the USTIF shall have the right to contact Bidders for the purpose of:

- Seeking clarification of the Bid which informs the USTIF's understanding of statements or information in the Bid;
- As a result of clarification, determining whether the bidder seeks to withdraw their bid.

#### Administrative Evaluation

USTIF will determine if a bid is administratively qualified based on certain criteria including, but not limited to acceptance of the Remediation Agreement, proposed modifications to the Remediation Agreement, history of terminated Remediation Agreements and demonstration of insurance requirements.

#### Technical Scoring

Bids that are considered administratively qualified are evaluated for technical viability before cost is considered. Bids that have technical scores that are equal to or greater than 70% of the highest technical score will advance to cost scoring. Bids with technical scores below 70% of the highest technical score are eliminated from further consideration.

Numerical values will be assigned for defined SOW bids for two categories:

- Understanding the problem and demonstrating knowledge of how to perform the work
- Qualifications and Experience

Numerical values will be assigned to three categories in those cases where there is a bid-to-result request:

- Understanding of the problem
- Technical and Regulatory Approach to Remediation
- Qualifications and Experience

## Cost Scoring

Cost scores are determined by a cost formula. The bid(s) with the lowest total cost receives the maximum cost points available. The remaining bids are scored by applying the following cost formula:  $(1 - ((B - A) / A)) \times C = D$

A = the lowest bid cost

B = the bidder's cost being scored

C = the maximum number of cost points available

D = bidder's cost score (points)

If a bid cost is double or greater than double the amount of the lowest bid cost the bid will be assigned zero cost points.

## 2. Evaluation of Bids

A committee comprised of at least two members of the USTIF staff, two members of TPA staff, and the TPR who assisted in developing the RFB will score all bids that are administratively qualified based on the above criteria. USTIF reserves the right to assign additional non-scoring members to the evaluation committee as needed. USTIF recognizes that several bids may be acceptable and receive similar numerical scores. At the conclusion of the scoring process, the claimant will receive those bids whose numerical scores place them in the category of meeting Reasonable and Necessary criteria and acceptable for USTIF funding. The claimant may select any of the consulting firms that had a technical score that allowed the bid to advance to cost scoring, to implement the tasks described in the bid; however, USTIF will only provide funding up to the highest fixed price of those bids determined to be Reasonable and Necessary for USTIF funding.

## General Site Background and Description

Each bidder should carefully review the existing information and documentation provided in Attachment 5. The information and documentation has not been independently verified. Bidders may wish to seek out other appropriate sources of information and documentation specific to this Site. If there is any conflict between the general Site background and description provided herein and the source documents within Attachment 5, the bidder should defer to the source documents.

### Background Summary

The Northwest Bank property ("Site") encompasses ~0.75-acre on the south side of Main Street (PA Route 322) within the town of Clarion, Pennsylvania, and improved with one commercial building. The Site and vicinity are shown on Figure 1 (Attachment 5a). The Site was formerly occupied and operated as Clarion Gulf, automobile repair garage with gasoline and diesel fuel retail operations (dispensing/sales), which occupied the Site from the late 1950s until 2008. The former Clarion Gulf UST systems included five 4,000-gallon USTs containing unleaded gasoline (Tanks 001-004) and diesel fuel (Tank 005) located in two separate areas of the Site, along with the associated dispenser islands (Figure 1). Northwest Bank purchased the property in 2008 and removed the USTs and dispensing systems in January-March 2009, and later redeveloped the parcel to be occupied by the Northwest Bank branch office.

### Source/ Release (Claim # 20090013(F))

During the 2009 UST closure work associated with Tanks 001-005, including all piping and dispensers, a 500-gallon UST was also discovered and removed. This 500-gallon UST is referenced as Tank 006 and reportedly once contained used motor oil.<sup>1</sup> Releases of unleaded gasoline (ULG) and diesel fuel were identified and reported to PADEP and PAUSTIF during the UST closure work. The source of the ULG release was reported to be holes discovered in the product piping along with petroleum stained soils within the product line trenching. The source of the diesel fuel release was reported to be unspecified physical/mechanical issues associated with Tank 005 and its product piping.<sup>2</sup>

Following removal of the UST systems, soils were excavated beyond the footprint of the UST systems. It was reported that the excavation extended to depths varying from ~3 to 10 feet with ~1,400 cubic yards of soil being excavated, and that 3,893 tons of petroleum impacted soils were transported off-site for disposal.<sup>3</sup> Following the excavation, a total of 29 biased-selected soil samples were collected from the excavation sidewalls, bottom of the excavated product piping trenches, and other areas of the completed excavation. Concentrations of the ULG and diesel fuel parameters in the post-excavation soil samples were all below PADEP's Statewide Health Standards (SHS).

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<sup>1</sup> UST System Closure Report Form, dated April 23, 2009.

<sup>2</sup> Notice of Reportable Release forms, dated February 2009 and March 2009.

<sup>3</sup> Information provided does not indicate if the excavation extended to the bedrock surface everywhere.

## Site Characterization Activities

Site characterization activities associated with PAUSTIF Claim # 20090013(l) were initiated by Kleinfelder shortly after the UST closure and excavation work in July 2009. The characterization activities included:

- Installing 10 on-property and 23 off-property bedrock wells with various screen intervals installed within three discrete bedrock depth intervals, defined by Kleinfelder as “shallow”, “intermediate”, and “deep”;
- Analyzing groundwater samples from the 33 monitoring wells;
- Aquifer slug testing;
- Installing and sampling two on-property soil vapor sampling points (SV-1 and SV-2);
- Remedial feasibility testing;
- Advancing and sampling two off-property open rock test wells (TW-1 and TW-2); and
- Down-hole geophysics and packer testing at TW-1 and TW-2.

At most of the locations investigated off-property, and at one location on-property, the monitoring wells were generally installed in triplets (three separate wells installed at each location investigated), with each well in a triplet installed at “shallow” (20 feet in depth), “intermediate” (30 feet in depth), and “deep” (40 feet in depth) intervals (e.g., MW-8, MW-8I, and MW-8D).

A listing of the existing wells and basic construction specifications is provided in Table 1. The locations of the monitoring wells and soil vapor sampling points are shown on Figure 2 (Attachment 5a) and figures in the attached reports provided in Attachment 5.

### Soil & Bedrock Profile

Unconsolidated deposits (~3.5 to 10 feet thick) on-property consist of natural clay soils along with “compacted” fill material made up of a mixture of clay, shale, and sandstone rock fragments.<sup>4</sup> Off-property the overburden is generally characterized as a natural clay soil. Bedrock consists of interbedded layers of shale and sandstone at least to the total depths of the borings/wells. Bedrock bedding structure has a very shallow slope in the southeasterly direction. Mine mapping of the area indicates that the Site is underlain by the Clarion Coal seam, but it does not appear that this coal seam has been mined beneath the Site. The Clarion Coal seam is typically only a few inches thick in the area.

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<sup>4</sup> Given the depth to bedrock of 10 feet and the fill material identified on 4 out of 7 on-property monitoring well logs as “compacted fill”, the 2009 soil excavation may have extended to ~10 feet and was backfilled with this mixture of clay, shale, and sandstone.

**Table 1 – Monitoring Well Summary<sup>5</sup>**

<b>Monitoring Well</b>	<b>Designation</b>	<b>Total Depth (ft.)</b>	<b>Screen Interval (ft.)</b>
<i>On-Property Wells</i>			
MW-1	Shallow	18	8-18
MW-2	Shallow	18.5	8.5-18.5
MW-3	Shallow	20	10-20
MW-4	Shallow	20	10-20
MW-5	Shallow	20	10-20
PZ-1S	Shallow	20	18-20
PZ-1D	Intermediate	30	28-30
MW-8	Shallow	20	10-20
MW-8I	Intermediate	30	25-30
MW-8D	Deep	40	37-40
<i>Off-Property Wells</i>			
MW-6	Shallow	20	10-20
MW-7	Shallow	20	10-20
MW-7I	Intermediate	30	25-30
MW-7D	Deep	40	37-40
MW-9	Shallow	20	10-20
MW-10	Shallow	20	10-20
MW-10I	Intermediate	30	25-30
MW-10D	Deep	40	37-40
MW-11	Shallow	20	5-20
MW-11I	Deep	40	37-40
MW-11D	Deep	52	49-52
MW-12	Shallow	20	10-20
MW-12I	Intermediate	30	27-30
MW-12D	Deep	40	37-40
MW-13	Shallow	20	10-20
MW-13I	Intermediate	30	27-30
MW-13D	Deep	40	38-41
MW-14	Shallow	20	10-20
MW-14I	Intermediate	30	27-30
MW-14D	Deep	40	37-40
MW-15	Intermediate	30	25-30
MW-16	Intermediate	29.5	24.5-29.5
MW-17	Intermediate	31	26-31

Groundwater / Hydrology

Groundwater is found in the underlying bedrock. There does not appear to be any appreciable difference in the direction of groundwater flow between the “shallow”, “intermediate”, and “deep”

<sup>5</sup> PZ-1D is designated as an “intermediate” bedrock well by Kleinfelder given the depth of 30 feet, consistent with other “intermediate” wells. MW-11I is designated as a “deep” bedrock well by Kleinfelder given the depth of 40 feet, consistent with other “deep” wells.

monitoring wells. There appears to be a hydraulic high in the vicinity of the Northwest Bank property, with more of a radial flow in the “shallow” portion of bedrock (i.e., possibly associated with ponded water in former UST over-excavation backfill) with shallow flow off-property to the northeast and south/southwest. This groundwater high appears to also project into the “intermediate” bedrock and “deep” bedrock horizons resulting in similar flow to the northeast and southwest/south directions away from the Northwest Bank property.

Water level data for the on- and off-property well triplets suggest a downward/vertical flow gradient through the bedrock layers. The site is on a topographic high with the nearby Clarion River located north and southwest of Site, ~400 feet lower in elevation. This downward groundwater flow gradient, along with likely bedrock fracturing, would provide the means for contaminant migration deeper into the underlying bedrock.

Downhole geophysics performed on the two open test boreholes (TW-1 and TW-2) identified several fractures from ~20 feet to the bottom of the boreholes at ~35 feet with most of the fractures noted to be “tight” while some others noted as “open”. Subsequent pumping tests confirmed that groundwater production from the mostly “tight” bedrock fractures is limited. Packer testing of these two open borehole wells included pumping and sampling at discrete intervals to isolate specific fracture zones. Reportedly, the testing was inconclusive as the fracture zones were not productive and were drained shortly after pumping began. Low concentrations of Benzene and 1,2,4-trimethylbenzene (1,2,4-TMB) initially exceeded the R-SHS at TW-1 and TW-2.

### *Dissolved Groundwater Contamination*

Bedrock groundwater impacts above the PADEP R-SHS on-property in the “shallow” wells currently are limited to benzene, which extends onto the adjoining property to the east. However, as the contaminants migrated vertically downward into deeper portions of the bedrock (i.e. “intermediate” and “deep” bedrock wells) the impacts extended more broadly outward in the downgradient direction south of the Northwest Bank property to numerous off-property areas. Currently, the highest concentrations of benzene, toluene, ethylbenzene, xylenes, naphthalene, 1,2,4-trimethylbenzene (1,2,4-TMB), and 1,3,5-trimethylbenzene (1,3,5-TMB) exceeding the PADEP R-SHS are off-property in the “intermediate” and “deep” wells to the south of the Northwest Bank property. Specifically, the most elevated dissolved concentrations have been observed beneath the Wendy’s restaurant property at the locations of MW-10I and MW-10D, located downgradient of the Site.<sup>6</sup> Although these compounds have routinely been detected in MW-10I, concentrations of these compounds suddenly spiked two to three orders-of-magnitude (OOM) at MW-10D in August 2019. The elevated “spiked” concentrations in MW-10D were sustained for a period of time but are generally declining with the exception of 1,2,4-TMB and 1,3,5-TMB which remain stable at those elevated concentrations. The sudden increase in dissolved concentrations of ULG parameters in MW-10D occurred soon after (e.g., within a month

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<sup>6</sup> Note that the deeper bedrock plumes have not been fully delineated vertically on-property or laterally in various directions off-property. Although deep groundwater recovery wells were installed on-property to a depth of 40 feet (discussed in more detail below), no deep bedrock monitoring wells have been installed on-property in the former source/ release area (vicinity of “shallow” monitoring wells MW-1 and MW-2).

of) the air rotary drilling of nearby TW-2 that was performed in late July 2019 which reportedly is the suspected cause of the sudden spike of concentrations at MW-10D.

#### *Light Non-Aqueous Phase Liquid (LNAPL)*

Historically, measurable LNAPL was observed at “shallow” on-property MW-2 and nearby off-property “shallow” MW-6. The LNAPL thickness was initially 0.33 feet in MW-2 immediately after installation in August 2008, and then ranged from 0.01 to 0.17 feet in 2009. The LNAPL thickness in MW-6 ranged from 0.01 to 0.1 inch in 2010 and 2011. LNAPL has not been observed in these wells since that time. In September 2020, approximately one year after the spike in dissolved petroleum contamination, a trace (~1/2-inch) of LNAPL was observed at off-property downgradient “deep” bedrock well MW-10D. No LNAPL has been observed at MW-10D since September 2020.

#### Soil Vapor

Soil vapor samples were collected from the two existing soil vapor sampling locations, SV-1 and SV-2, on various occasions in 2009 and 2010 prior to implementing groundwater remediation. A concentration of benzene exceeded the older 2004 PADEP vapor intrusion screening levels, and a few of the laboratory reporting limits exceeded the screening levels for benzene, naphthalene, and both TMBs. Comparing the data to the PADEP 2019 vapor intrusion Non-Residential Near Source screening levels, the laboratory reporting limit for naphthalene exceeds the screening level.

#### **Remedial Activities**

In-situ remediation included the operation of a Dual Phase Extraction (DPE) system which was implemented following PADEP approval of Kleinfelder’s October 2010 Remedial Action Plan (RAP). The DPE system was installed and operated on the Northwest Bank property from October 2013 to September 2018, extracting vapors and groundwater from four on-property recovery wells, RW-1 through RW-4 (Figure 2). The four recovery wells are installed to a depth of 40 feet with 30 feet of screen and intersect all three of Kleinfelder’s bedrock horizons monitored by the site wells. The DPE system was idled in September 2018 reportedly due to asymptotic recovery rates for vapors and groundwater. Reportedly, ~820,000 gallons of groundwater were treated along with ~78 gallons of recovered LNAPL. Groundwater recovery rates were minimal, averaging less than 0.5 gpm from all four recovery wells combined, suggesting poor bedrock fracture continuity and/or storage capacity. Although the DPE system appeared to have some effect on reducing contaminate concentrations in the “shallow” bedrock horizon, the 2009 soil excavation was likely a much larger factor in significantly reducing contaminate concentrations both on- and off-property in the “shallow” bedrock horizon. DPE remediation appears to have had little positive effect on impacts in deeper bedrock off-property.<sup>7</sup>

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<sup>7</sup> No deeper bedrock wells have been installed on-property in the former source/release area (vicinity of “shallow” monitoring wells MW-1 and MW-2) to ascertain influence in the deeper bedrock from the DPE system.



### **Solicitor's Selected Closure Standards**

The Solicitor has chosen to change the cleanup standard from current residential SHS to PADEP's site-specific standard (SSS) via pathway elimination for both soils and groundwater.

## Scope of Work (SOW)

This RFB seeks competitive bids from qualified contractors to perform the activities in the SOW specified herein. Additionally, the PADEP Northwest Regional Office (NWRO) was given the opportunity to review the SOW. PADEP's comments provided on the RFB were incorporated into the SOW.

### Objective

Solicitor seeks competitive, fixed-price bids, for this Defined Scope of Work RFB to complete the milestones outlined below intended to take this Site to a SSS closure. To be deemed responsive, each bid *must* respond *in detail* to each of the milestones, including describing the bidder's understanding of the conceptual site model and how that model relates to the bidder's proposed approach to execute the SOW. Each bid must describe how each of the RFB milestones is proposed to be achieved while offering rationale for bidder's SOW methods and approach based on bidder's interpretation of the site conditions. In reviewing the quality of bids submitted under Defined Scope of Work solicitations, there is an increased emphasis placed on cost.

### Constituents of Concern (COCs)

The COCs for soils and groundwater are the PADEP short list for ULG and diesel fuel (benzene, toluene, ethylbenzene, xylenes (BTEX); MTBE; cumene; naphthalene; 1,2,4-TMB; and 1,3,5-TMB).

### General SOW Requirements

The bidder's approach for completing the SOW shall be in accordance with generally accepted industry standards/practices and all applicable federal, state, and local rules, regulations, guidance, and directives. The latter include, but are not limited to, meeting the applicable requirements of the following:

- The Storage Tank and Spill Prevention Act (Act 32 of 1989, as amended);
- Pennsylvania Code, Title 25, Chapter 245 - Administration of the Storage Tank Spill and Prevention Program;
- The Land Recycling and Environmental Remediation Standards Act of 1995 (Act 2), as amended);
- Pennsylvania Code, Title 25, Chapter 250 - Administration of Land Recycling Program;
- The PADEP Land Recycling Program Technical Guidance Manual dated January 19, 2019 (Technical Guidance Document 261-0300-101); and
- Pennsylvania's Underground Utility Line Protection Law, Act 287 of 1974, as amended by Act 121 of 2008.

During completion of the milestone objectives specified, the selected consultant shall:<sup>8</sup>

- Conduct necessary, reasonable, and appropriate project planning and management activities. Such activities may include Solicitor communications/updates, meetings, record keeping, subcontracting, personnel and subcontractor management, quality assurance/quality control, scheduling, and other activities (e.g., utility location). Planning and management activities will also include preparing and implementing plans for health and safety, waste management, field sampling/analysis, and/or other plans that are necessary and appropriate to complete the SOW. Planning and management shall include identifying and taking appropriate safety precautions to not disturb Site utilities including, but not limited to, contacting Pennsylvania One Call as required prior to any ground-invasive work. As appropriate, project management costs shall be included in each bidder's pricing to complete the milestones specified below.
- Be responsible for coordinating, managing, and completing the proper management, characterization, handling, treatment, and/or disposal of all impacted soils, water, and derivative wastes generated during the implementation of this SOW. The investigation-derived wastes, including purge water, shall be disposed in accordance with standard industry practices and applicable laws, regulations, guidance, and PADEP directives. Waste characterization and disposal documentation (e.g., manifests) shall be maintained and provided to the Solicitor and the PAUSTIF upon request. All investigation derived wastes shall be handled and disposed per PADEP's Regional Office guidance. It is the selected consultant's responsibility to conform with current PADEP Regional Office guidance requirements in the region where the Site is located.
- Be responsible for providing the Solicitor with adequate advance notice prior to each visit to the property, and to owners of off-property locations, as applicable. The purpose of this notification is to coordinate with the Solicitor, and owners of off-property locations, to ensure that appropriate areas of the Solicitor's property and off-property locations are accessible. Return visits to the Solicitor's property, and off-property locations, will not constitute a change in the selected consultant's SOW or result in additional compensation under the Remediation Agreement.

### **Site-Specific Guidelines**

As part of this RFB, the selected consultant will need to consider the following site-specific guidelines:

**Property and Off-Property Access.** Selected consultant will be responsible for securing access to the Northwest Bank property with the Solicitor within the fixed price of the associated milestones for which access is necessary. The selected consultant will also be responsible for negotiating

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<sup>8</sup> As such, all bids shall include the costs of these activities and associated functions within the quote for applicable tasks/milestones.

and securing access to off-property locations where needed to implement the SOW. Each bid shall assume that locating/ making contact with the property owner, providing property owner with access agreement, and PADEP involvement (as necessary) is to be included within the fixed price of the associated milestones for which access is necessary at these off-property locations.<sup>9</sup> It is reasonable to assume that Solicitor will assist, as needed, with this effort. Access attempts must be documented with a copy of a letter requesting access along with a draft access agreement sent to property owners via certified mail.

The selected bidder is cautioned to be aware of entering and exiting vehicles and business patrons at the Northwest Bank property, and also at off-property locations where access is necessary. Also, bidders shall be mindful of roadway traffic and necessary safety precautions (e.g., traffic control measures) prior to and during field activities conducted near, or within the roadway right-of-way (ROW). Pedestrian and vehicular traffic control and safety measures shall be included in each bid response and fixed price for each milestone, as necessary.

**Field Activities.** All on- and off-property work should be conducted during the normal business days and hours of 8:00 AM to 5:00 PM from Monday through Friday, unless work outside of these normal business days and hours is authorized by the respective Solicitor for the Northwest Bank property, and respective property owner for any of the off-property locations, as necessary.

**Responsibility.** The selected consultant will be the consultant of record for the site. The selected consultant will be required to take ownership of the project and will be responsible for representing the interests of the Solicitor and PAUSTIF with respect to the project. This includes utilizing professional judgment to ensure reasonable, necessary and appropriate actions are recommended and undertaken to protect sensitive receptors and carry out adequate site characterization and other work to move the site toward a SSS closure.

**Field Instrumentation.** Each bidder should state in their bid response the appropriate field instrumentation (e.g., pumps, meters, photoionization detectors, etc.) to be used during the completion of the SOW. Specifically, the products associated with the regulated release at this site are ULG and diesel fuel. As such, any field-screening instrumentation used at the site should be able to detect the presence of hydrocarbons associated with that type of product.

**Safety Measures.** Each bidder should determine the safety measures necessary to appropriately complete the milestones. Specifically, if a consultant feels that it is appropriate and necessary to complete utility clearance using an air knife, the cost should be included in their fixed-price cost. If a bidder includes costs to conduct specific safety measures or activities, the bidder should specify it in the bid response and discuss why it is appropriate and necessary and indicate which methods will be used and to what extent. As discussed in the RFB, cost is not the only factor when evaluating bid responses and other factors are taken into consideration during the bid evaluation process, including appropriate safety measures.

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<sup>9</sup> If after performing the work under the fixed price, access still has not been secured, additional work to secure access will be handled outside the Remediation Agreement.

**Investigation Derived Waste Disposal.** The investigation derived waste (including, but not limited to, soil/rock cuttings, used carbon, and well development/purging liquids) shall be disposed per the instructions included in the “General SOW Requirements” section of the RFB. Bidders will be responsible for arranging any off-site waste disposal (if required) and including costs in their bid response to cover the disposal of all potential waste related to the milestones included in the SOW. Containerized soil and groundwater may be temporarily stored on-site but should be removed from the site in a timely manner. Bidders will be responsible for including costs in their bid response to cover the disposal of all potential waste related to the milestones included in the SOW. Each bidder should estimate the volume of waste using its professional opinion, experience and the data provided. PAUSTIF will not entertain any assumptions from the selected bidder in the Remediation Agreement with regards to a volume of waste. Invoices submitted by the selected bidder to cover additional waste disposal costs as part of activities included under the fixed-price Remediation Agreement for this site will not be paid.

### **Site-Specific Milestones**

**Milestone A – Continue Quarterly Groundwater Monitoring, Sampling & Reporting.** Under this milestone, bidders shall provide a firm fixed-price to continue with quarterly groundwater monitoring, sampling, and reporting events while performing the additional site characterization activities (Milestones B through G), preparation/submittal of the combined Revised SCR/ RAP (Milestone H), and waiting for PADEP approval of the Revised SCR/ RAP. For the purposes of this RFB, it is assumed that this work will be required for three quarters (nine months). However, each bid must specify the number of quarterly events that will be needed along with their supporting rationale. Any additional quarterly monitoring and reporting events, beyond the three quarters specified in this RFB, shall be defined on the Bid Cost Spreadsheet and shall be incorporated in the Remediation Agreement as Optional Cost Adder Milestone A.<sup>10</sup>

Each quarterly groundwater monitoring and sampling event shall include the sampling of existing on-property wells MW-1 through MW-5, MW-8 Triplets<sup>11</sup>, PZ-1S, and PZ-1D; and existing off-property wells MW-6, MW-7 Triplets, MW-9, MW-10 Triplets, MW-11 Triplets, MW-12 Triplets, MW-13 Triplets, MW-14 Triplets, MW-15, MW-16, and MW-17.

During each quarterly groundwater monitoring and sampling event, and prior to any well purging, the depth to groundwater and any potential separate-phase hydrocarbons (SPH)<sup>12</sup> shall be gauged at all existing available monitoring wells. Groundwater level measurements obtained from

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<sup>10</sup> The Remediation Agreement includes a Provision that the quarterly site monitoring, sampling & reporting events are limited to the three quarters in the base contract under Milestone A plus the number of events defined in Selected Consultant’s bid under Optional Cost Adder Milestone A. If additional events are required under Milestone A, pre-approval from Solicitor and PAUSTIF (for funding) is required.

<sup>11</sup> Triplets include the “shallow”, “intermediate”, and “deep” wells at this location (e.g. MW-8, MW-8I, MW-8D).

<sup>12</sup> Since the remediation system was idled in 2018, SPH was only observed one-time on 9/29/20 at off-property MW-10D. If measurable SPH is discovered, any work to address the SPH would be considered a changed condition of the fixed-price contract and will require Solicitor and PAUSTIF approval of a work plan and cost estimate before beginning SPH mitigation work.

the monitoring wells shall be converted to groundwater elevations for assessing groundwater flow direction and hydraulic gradient.

Each of the monitoring wells designated for sample collection shall be purged and sampled using low-flow procedures in accordance with the PADEP Groundwater Monitoring Guidance Manual and standard industry practices. Bidders shall manage purged groundwater and other derived IDW generated by the well purging and sampling activities in accordance with the PADEP NWRO guidance.

Groundwater samples shall be analyzed for the PADEP short-list of ULG and diesel fuel parameters (BTEX, MTBE, cumene, naphthalene, 1,2,4-TMB, and 1,3,5-TMB) by a PADEP-accredited laboratory using appropriate analytical methods and detection levels. Bidders shall specify the analytical methods to be used for the monitoring well samples. Appropriate quality assurance / quality control (QA/QC) samples shall also be collected during each event and analyzed for the same parameters.<sup>13</sup> Bidders shall assume per quarterly sampling event: one blind duplicate and one trip blank. In addition, each event shall include low-flow purge field measurements for the following parameters: pH, temperature, specific conductance, dissolved oxygen (DO; measured in-situ), oxidation/reduction potential (ORP) and total dissolved solids (TDS).

The Remedial Action Progress Reports (RAPRs) describing the sampling methods and results shall be provided to the PADEP on a quarterly basis and within 30 days of the end of the current quarter. At a minimum, each RAPR shall contain and include the requirements of 25 Pa. Code 245.312(c), including the following:

- A summary of site progress made toward completing the additional characterization work;
- A narrative description of the sampling procedures and results;
- Tabulated data collected from the monitored wells documenting the depth to groundwater and thickness of any free product encountered;
- Groundwater elevation contour maps depicting groundwater flow direction – separate maps for the shallow and deeper bedrock wells;
- Tabulated historical quantitative groundwater analytical results including results from the current quarter;
- Current quarter laboratory analytical report(s);

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<sup>13</sup> Each bidder's approach to implementing Milestone A shall clearly identify the number of sampling events, number of wells / samples per event, well purging and sampling method(s), QA/QC measures, analytes, purge water management methods, and other key assumptions affecting the bid price.

- One site-wide iso-concentration contour map for each compound detected in any one well above the SHS during the quarter – separate maps for shallow and deeper bedrock wells;<sup>14</sup>
- For each well exceeding SHS, a graphical depiction of historical key contaminant concentrations and groundwater elevations to provide an assessment of correlations between fluctuating water levels / precipitation events and contaminant concentrations;
- For each well exceeding SHS, a graphical depiction of recent key contaminant concentration trends;
- Discussion of the data to offer an updated assessment whether these data are consistent with a stable, shrinking, or expanding plume;
- Treatment and disposal documentation for waste generated during the reporting period; and
- Demonstration of compliance with the required Federal, State, and local permits and approvals.

PAUSTIF will only reimburse for the necessary quarterly groundwater sampling / reporting events actually completed under this milestone (e.g., this milestone shall be considered completed with the initiation of Milestone I). Each RAPR shall be sealed by a Professional Geologist and / or Professional Engineer registered in the Commonwealth of Pennsylvania (bidders shall refer to state licensing laws to determine which seals are required based on the work performed and documented in the groundwater attainment demonstration report).

**Milestone B – Installation of Bedrock Monitoring Wells.** The existing bedrock monitoring well network generally consists of “shallow” bedrock wells mostly installed to a depth of ~20 feet with 10-foot screened intervals. However, deeper bedrock wells installed primarily to 30 feet (“intermediate”) and 40 feet (“deep”) were installed with shorter screened intervals (3 or 5-feet) with less than 10 feet of vertical separation between the well triplets (see Table 1 Monitoring Well Summary under the Site Characterization Activities section above). Typically, characterization of deeper bedrock groundwater (below the “shallow” water table zone) is performed using wells with longer screens (e.g., 10 feet) and with more vertical separation from the “shallow” set of monitoring wells. Therefore, additional characterization of the combined “intermediate” and “deep” bedrock groundwater zones will include wells screened from ~30 – 40 feet so that the screen intersects more fractures and bedding planes with increased vertical separation from shallow groundwater.

Data from the existing wells suggests that the shallow, intermediate and deep wells are monitoring the same water-bearing zone (water table aquifer) given the similarity in groundwater flow within these three bedrock horizons, and that there is a downward vertical gradient. Although delineation of bedrock groundwater contamination exceeding the SHS appears to have been fairly

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<sup>14</sup> All figures included in each RAPR (e.g., site plan, groundwater elevation maps, dissolved plume maps, etc.) shall be available in electronic format to the Solicitor upon request.

well defined from the existing site characterization work, there are a few data gaps remaining that need to be addressed to better understand the bedrock contaminant plumes to support revising the site closure standard from SHS to a risk-based SSS closure.

Further horizontal and vertical delineation of the bedrock dissolved contaminant plumes is necessary to address the data gaps identified in this milestone and will include the installation of a minimum of eight additional bedrock wells before developing the revised SSS remedial approach and cleanup plan. Under this milestone, bidders shall provide a detailed approach and firm fixed-price cost for installing the eight bedrock monitoring wells as follows:

- *Additional Deeper Wells in On-Property Source Area.* The magnitude and extent of residual petroleum contamination at depth in bedrock on the Northwest Bank source property is not fully characterized/delineated. Off-property groundwater analytical data suggest there is source material remaining on the property sustaining contaminant concentrations in groundwater. Remediation wells RW-1 and RW-2, located near source area wells MW-1 and MW-2, are installed deeper into bedrock to a depth of 40 feet; however, these wells are constructed with 30 feet of screen providing groundwater data over the entire saturated interval and may not be representative of actual concentrations at depth.

Therefore, for the purpose of this RFB, bidders shall assume installing three deep bedrock monitoring wells on the Northwest Bank property to a depth of 40 feet into the sandstone bedrock constructed using 10 feet of screen. Actual well depths may vary since the installation depth shall be terminated above any shale/coal layer that may possibly be encountered.

The three bedrock wells shall be installed at the following locations: one near existing well MW-1; one near existing well MW-2; and one near the southwest corner of the property.

- *Replacement of On-Property MW-8D.* The contaminant migration pathway from the original spill area to off-property MW-10I and MW-10D is difficult to discern with the current monitoring well array. The MW-8 triplet lies between the spill area and the problematic off-property MW-10 triplet which allows some limited insight into the contaminant migration pathway, but there appears to be a problem with MW-8D's construction. Specifically, although MW-8D is constructed the same as MW-10D with three feet of screen, the screen section in MW-8D intersects the coal and shale just below the sandstone bedrock, and not the sandstone like MW-10D.

Therefore, bidders shall install one deep bedrock monitoring well in the vicinity of existing MW-8D. This bedrock well shall be installed to a depth of 37 feet, assuming 7 feet of screen in the sandstone bedrock above the coal seam.

- *Undefined Extent of Deeper Dissolved Impacts Off-Property to the West.* Residual groundwater impacts in the deeper bedrock are unknown in the area of off-property MW-9 located downgradient and in a southwesterly direction from the on-property source. Although "shallow" well MW-9 is largely "clean", existing data suggest that dissolved



contamination may exist in bedrock below the depth of MW-9. “Intermediate” bedrock well MW-16, located southwest of MW-9, has been non-detect; however, MW-16 is installed over 200 feet from the source area and ~150 feet from MW-9.

Therefore, bidders shall install one deeper bedrock well to a depth of 40 feet with 10 feet of screen in the vicinity of existing off-property MW-9.

- *Undefined Plume Extents Off-Property to the South.* The plume migration limits have not been defined off-property to the south of existing “intermediate” well MW-17<sup>15</sup>.

Therefore, bidders shall install one deeper bedrock well to a depth of ~40 feet with 10 feet of screen intersecting the sandstone/ shale. This well shall be positioned south of off-property well MW-17.

- *Undefined Plume Extents Off-Property to the East.* The plume migration limits have not been defined off-property to the east of existing MW-10I and MW-10D.

Therefore, bidders shall install one deeper bedrock well to a depth of ~40 feet with 10 feet of screen intersecting the sandstone/ shale. This well shall be located east of off-property wells MW-10I and MW-10D on the Clarion University property.

- *Vertical Extent of Contamination Undefined at Off-Property MW-10D.* Given the downward vertical groundwater gradient, resultant downward contaminant migration in bedrock, and the significant impacts at off-property MW-10D, bidders shall install one deeper bedrock vertical delineation well to a depth of 70 feet using 10 feet of screen. This well shall be located near off-property MW-10D. The vertical extent well shall be installed with grouted outer casing (i.e., double cased) to a depth of ~45 feet (below any shale/coal layer) before advancing the boring to the total depth of 70 feet to avoid inadvertent downward migration of shallow contamination during the drilling process. Bidders may want to consider using an alternative less disruptive drilling method (e.g. rock coring versus air rotary) when advancing the borehole beyond the 45 foot outer casing, or must describe what additional measure may be taken, in addition to double casing the well, to help prevent downward mobilization of the known impacts at shallower depth.

Each bid must identify the proposed locations for the eight bedrock monitoring wells on a site drawing (labeled with distinct well identifications), along with the rationale for each location. The bids shall demonstrate an understanding that the general objectives for installing the new wells are to delineate the horizontal and vertical extent of dissolved-phase contaminants in the bedrock groundwater; develop an updated interpretation of groundwater flow; enable representative aquifer testing (as applicable under Milestone D); facilitate contaminant fate-and-transport modeling (as applicable under Milestone E); and evaluate natural attenuation processes. It is presumed that the final well locations may be adjusted slightly by the selected consultant to avoid any subsurface obstacles / utilities.

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<sup>15</sup> Additional vertical delineation may become necessary (e.g. area of MW-17) following evaluation of the groundwater data obtained from the proposed well south of MW-17. The additional vertical delineation will be handled using Optional Cost Adder Milestone B.

If during implementation of this milestone it is determined that one or more additional bedrock monitoring wells are necessary to complete groundwater characterization, these additional wells will be handled under Optional Cost Adder Milestones B1 through B4. Written email approval from Solicitor and PAUSTIF will be required before beginning the work.

For costing purposes, bidders shall assume that each of the bedrock monitoring well borings will be advanced to the depths specified above, although the total depth is likely to vary based on actual field conditions encountered. Bidders shall assume advancing all monitoring well borings using a multi-purpose drill rig capable of hollow stem auger, air rotary/air hammer drilling methods, and rock coring. Drilling material returned to the surface (e.g. soils, rock cuttings, rock core) shall be examined in the field and described for lithology, groundwater occurrence, bedrock fractures (as applicable) and potential staining / odor indicative of hydrocarbon contamination.

The bedrock groundwater monitoring wells will be constructed in accordance with the PADEP Groundwater Monitoring Guidance Manual. Bidders shall assume constructing each well of 2-inch diameter Schedule 40 PVC casing and 0.01-inch machine-slotted well screen. Although well depths may vary based on actual conditions encountered at each location. For cost comparison purposes, bidders shall assume 10 feet of well screen for well construction unless otherwise noted above.

Annulus materials shall consist of a filter-pack of silica sand of appropriate grain size for the formation screened and well-screen slot size, extending to a height of approximately one foot above the top of the screen section overlain by a well seal consisting of hydrated bentonite pellets with a minimum thickness of three feet. The remaining annulus shall be filled with a cement/bentonite slurry, with surface finishing consisting of an expandable locking cap fitted to the top of the PVC riser and a flush-mounted traffic-rated manhole with a bolt-on lid. The flush-mounted manholes shall be set into a 2 ft. by 2 ft. concrete pad.

To accommodate the possible need to advance and install bedrock wells deeper than 37 or 40 feet for the horizontal delineation wells and 70 feet for the vertical delineation well, bidders shall provide the following unit cost on the Bid Cost Spreadsheet (Attachment 2).

- Unit Cost UC-B – Excess Hollow-Stem Auger, Air Rotary, or Core Drilling & Well Installation Footage. Bidders shall provide a unit cost per lineal foot (\$/foot) for excess hollow-stem auger, air rotary, or rock core drilling and well installation (i.e., the total lineal well footage installed in excess of the cumulative 347 feet assumed in the bid [one 37 ft well, six 40 ft wells and one 70 ft well]). This unit cost shall include borehole advancement, logging and screening, well construction materials, well installation labor, and waste management and disposal in the event that additional well footage is required.

Each bidder's fixed-price cost for this task shall account for: (i) securing off-property access; (ii) traffic and/or pedestrian safety measures, as necessary; (iii) identifying subsurface utilities and other buried features of concern including, but not necessarily limited to, contacting PA One Call

and clearing each borehole location to a minimum depth of 5 feet using vacuum excavation; (iv) well development activities; (v) management of IDW; and (vi) professional surveying of the new well locations and top-of-casing elevations.<sup>16</sup> Well drilling / installation and development activities along with supporting documentation (e.g., waste manifests, boring logs and construction details, etc.) shall be documented in a RAPR (Milestone A) and the combined Revised SCR/ RAP (Milestone H).

**Milestone C – Groundwater Monitoring and Sampling of New Monitoring Wells.** Under this milestone, bidders shall provide a firm fixed-price to complete two groundwater monitoring and sampling events; an initial event and second confirmatory event for the eight bedrock wells installed under Milestone B. This milestone is separated into Milestone C1 – Initial Sampling Event and Milestone C2 – Second Confirmatory Sampling Event on the Bid Cost Spreadsheet and in the Remediation Agreement.

The initial groundwater monitoring and sampling event shall be performed within two weeks of installing and developing the eight monitoring wells installed under Milestone B, but no sooner than one week after the wells have been developed. The subsequent confirmatory monitoring and sampling event shall be conducted no less than four and no more than six weeks after the initial event, and bidders shall assume that this second confirmatory sampling event of the eight wells will be completed during a quarterly monitoring and sampling event (Milestone A).<sup>17</sup> Each of the monitoring wells shall be purged and sampled as discussed in Milestone A.

Appropriate QA/QC samples shall also be collected during each event and analyzed for the same parameters.<sup>18</sup> Bidders shall assume that the costs for one blind duplicate and one trip blank will be included under Milestone C1 for the initial groundwater monitoring and sampling event. Costs associated with mobilization and the QA/QC samples for the second confirmation sampling event of the eight wells installed under Milestone B shall not be provided under Milestone C2 since the confirmation sampling event shall be performed concurrent with a routine quarterly groundwater monitoring event for the existing Site monitoring wells (Milestone A).

The conduct and results of these two events (Milestones C1 and C2) shall be documented in a RAPR (Milestone A) and the combined Revised SCR/ RAP (Milestone H) and shall at least include a description of the following: narrative description of the sampling procedures and results; tabulated data collected from the monitored wells documenting the depth to groundwater and thickness of any free product encountered; groundwater elevation contour maps depicting

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<sup>16</sup> Bidders shall assume that the available survey information obtained by the existing Consultant (Kleinfelder) will be provided to the selected bidder in electronic format.

<sup>17</sup> If the initial and confirmation rounds of groundwater sampling results indicate that groundwater characterization is not complete, additional delineation shall be completed (Optional Cost Adder Milestone B). Monitoring and sampling of any necessary additional monitoring wells will be handled under Optional Cost Adder Milestone C and will require Solicitor and PAUSTIF approval before beginning the work. Should work be required to gain property access for additional well installation, this will be handled outside the Remediation Agreement.

<sup>18</sup> Each bidder's approach to implementing Milestones C shall clearly identify the number of sampling events, number of wells / samples per event, well purging and sampling method(s), purge water disposal methods, QA/QC measures, analytes, and other key assumptions affecting the bid price.

groundwater flow direction in the bedrock; tabulated historical quantitative groundwater analytical results; laboratory analytical report(s); one site-wide iso-concentration contour map for the shallow and deeper bedrock for each compound detected in any one well above the SHS during the quarter (if needed); and treatment and disposal documentation for waste generated.

**Milestone D – Aquifer Characterization Testing.** In order to establish hydraulic parameters for the bedrock groundwater, support updating the contaminant fate-and-transport modeling, and assist with developing a conceptual site model, bidders shall perform single-well slug testing on the bedrock groundwater. Bidders shall provide firm fixed-price costs to perform the slug tests on two deep bedrock monitoring wells installed on-property in Milestone B and three deep bedrock monitoring wells installed off-property in Milestone B. Each bid must identify the wells to be used for slug testing, the rationale for well selection, and provide a description of the proposed slug testing procedures and the planned techniques for reducing the data. The slug tests shall be performed in accordance with accepted industry standards and the data shall be reduced / evaluated using appropriate methods. (e.g., Bouwer and Rice slug test solution for determining the hydraulic conductivity of unconfined aquifers with completely or partially penetrating wells [1976]). Documentation of the slug testing methods, results, and conclusions shall be provided in the combined Revised SCR/ RAP under Milestone H, and the slug testing results shall be utilized in the fate-and-transport modeling described in Milestone E.

**Milestone E – Contaminant Fate-and-Transport Modeling.** After completing the bedrock groundwater monitoring well installations and sampling under Milestones B and C, any additional monitoring well installation(s) and sampling (Optional Cost Adder Milestones B and C), and aquifer testing (Milestone D), fate-and-transport modeling shall be performed. Bidders shall assume that MT3D coupled with MODFLOW will be used to complete the fate-and-transport modeling for the fractured bedrock aquifer. Bidders are invited to recommend a different fate-and- transport modeling application for the bedrock groundwater; however, the fixed price cost provided for Milestone E on the Bid Cost Spreadsheet (Attachment 2) shall be based on the MT3D and MODFLOW modeling approach. If a bidder is recommending an alternative fate-and-transport model for the bedrock groundwater, the bidder must provide the rationale for this alternative model along with a separate Bid Cost Spreadsheet that includes the fixed price for this alternative.

The fate-and-transport modeling shall utilize the data generated from the slug testing under Milestone D and any relevant historical site characterization data. Each bidder shall describe in detail the specific proposed approach to completing the fate-and-transport modeling for this site. The fixed-price cost shall include documenting the modeling effort in the Revised SCR/ RAP. This documentation shall describe all model input/output, provide a thorough explanation of model construction, justify all input parameters, and include a detailed discussion of the modeling results and conclusions regarding current and predicted future plume stability (or lack thereof).

**Milestone F – Updating Vapor Intrusion Evaluation.** Bidders shall provide a firm fixed-price to update the evaluation of the indoor air exposure pathway to be consistent with the requirements specified in the PADEP guidance document, “Land Recycling Program Technical Guidance

Manual 261-0300-101 (TGM) for Vapor Intrusion into Buildings from Groundwater and Soil under Act 2”, dated January 19, 2019. Soil vapor data should be compared to the 2019 vapor intrusion screening values (for SSS, vapor screen values are 1/10<sup>th</sup> the values presented in the TGM) and additional vapor intrusion analysis may be necessary for any areas where screening values are exceeded off-property in accordance with the TGM.

As part of this evaluation, each bid shall include sampling of the two existing soil vapor sampling points (SV-1 and SV-2). Two sampling events shall be conducted for SV-1 and SV-2 with the events separated by at least 45 days. The samples shall be analyzed for the PADEP short-list of ULG and diesel fuel parameters (BTEX, MTBE, cumene, naphthalene, 1,3,5-TMB, and 1,2,4-TMB) by a PADEP-accredited laboratory using appropriate analytical methods and detection levels.<sup>19</sup> Each bidder shall describe their approach in detail including sampling methods and analysis and shall provide a schedule for when the sampling would be anticipated. If it is determined from the evaluation that additional soil vapor sampling points are necessary, this work would be addressed using Optional Cost Adder Milestone F. All work under this milestone shall be documented in the combined Revised SCR / RAP.

**Milestone G – Exposure Pathway Evaluation and Baseline Risk Assessment.** Each bid response shall describe how the exposure pathway evaluation and human health risk assessment will be completed in accordance with USEPA and Act 2 protocols. Bidders shall assume a numerical human health risk assessment will need to be performed for potentially complete pathways that have not been eliminated including (but not limited to) those associated with the on-property and off-property (roadway right-of-way) construction / utility workers.

Bidders shall explicitly identify the individual and risk assessment credentials of the proposed risk assessor on bidder’s staff or on bidder’s specialty subcontractor’s organization. Resume(s) for the proposed risk assessment personnel shall clearly identify their training, background, certifications and experience. Bids lacking adequate details on the risk assessment personnel or that do not include risk assessment specialists may be deemed deficient and be reflected negatively in the bidder’s technical score.

A residential / commercial well use survey and evaluation of local groundwater ordinances shall be performed, as well as research concerning zoning ordinances, flood zones, and future land use plans for the properties in the area of concern.

Should the exposure pathway analysis determine potentially complete exposure pathways, a risk assessment shall be performed with comparing residual soil and groundwater contaminant levels against applicable soil and groundwater screening criteria<sup>20</sup>. For those soil and groundwater

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<sup>19</sup> Each bidder’s approach to implementing Milestone F shall clearly identify the number of sampling events, number of samples per event, QA/QC measures and samples, analytes, analytical method, and other key assumptions affecting the bid price.

<sup>20</sup> Constituent concentrations are to be screened against the USEPA RSLs and not against the PADEP SHS. Only those constituents that do not screen out against the risk-based screening levels remain as COPCs for the exposure pathway analysis and/or demonstrating attainment of the PADEP SHS for a risk-based numeric Site Specific Standard.

contaminants passing through the screening criteria, the human health exposure risks shall be quantified. If human health risks are excessive (organ-specific HI >1 and /or carcinogenic risk of >1 x 10<sup>-4</sup>), then appropriate land use restrictions for the spill property shall be identified to eliminate the pathway causing the excessive human health risk.

The risk assessment shall encompass an exposure assessment, toxicity assessment, and risk characterization. The identification of exposure pathways for the Site shall be based upon guidance from the American Society for Testing and Materials (ASTM) and the United States Environmental Protection Agency (USEPA), as required by Act 2, Section 250.404. The exposure assessment deliverable shall include separate Exposure Pathway Flowcharts graphics for (a) On-Property; (b) Off-Property; and (c) roadway ROW to support the risk assessment text. These charts shall graphically depict the thought process in identifying the potentially complete pathways for each of the three areas. The exposure evaluation charts shall include the exposure pathway steps of Constituent Source, Receiving Media, Transport Mechanisms, Exposure Routes and current and future human receptors (i.e., facility workers, construction workers, trespassers, residents, and recreational users and others). The exposure assessment shall take into account the following land use restrictions at the Northwest Bank property:

- No use of groundwater beneath the property;
- Maintain protective cover to prevent infiltration of surface water; and
- Soil management plan (including Health and Safety Plan).

Excessive risks for off-property locations are anticipated to be eliminated via a post remedial activity and use limitation consisting of the periodic post-remedial care groundwater use surveillance and reporting to PADEP.

The risk assessment shall identify the site soil and groundwater samples used in the risk assessment, show how the constituents of interest (COI) were identified and present the COI for each contaminated media with a potentially complete pathway to a human receptor. Additionally, the risk assessment shall show how the risk assessment exposure point concentrations (EPCs) were calculated<sup>21</sup> for each contaminated media with a potentially complete human exposure pathway and summarize the calculated EPCs.

For each potentially complete exposure pathway, the level of carcinogenic risk shall be quantified, and the total cumulative carcinogenic risks shall be calculated. Non-carcinogenic risks shall be calculated using the hazard index. Exposure and toxicity assumptions shall be presented and well documented in the risk assessment report along with an uncertainty analysis.

For groundwater impacts that extend off-property, beyond the Northwest Bank property boundaries, that present an excessive carcinogenic or non-carcinogenic risk, bidders shall assume that post-remedial care off-property groundwater use surveillance monitoring will be the

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<sup>21</sup> EPCs shall be derived for COIs by statistical analysis (maximum concentrations shall not be used for EPCs).

site remedy. Specifically, periodic (e.g., annual) surveillance would be implemented to verify that groundwater is not used. Bidders shall assume that groundwater contamination beneath roadways would be addressed via an environmental covenant waiver with respect to future installation of potable wells in the roadway ROWs to eliminate potable well exposure pathways. Bids shall provide a detailed description of how bidders will evaluate the on- and off-property trench worker vapor inhalation pathway including how it will estimate the Construction Worker vapor EPC. If a model is to be used to estimate the vapor concentrations, bidders shall identify the model and the input assumptions that will be used (e.g., trench width and depth dimensions, wind speed / direction, etc.). Should excessive human health risks exist at any of the off-property locations and roadways and remediation would be necessary to mitigate those risks, any remediation would be considered a New Condition of the fixed price agreement. The risk assessment shall identify the media and location-specific numerical contaminant concentrations (exposure point concentrations) that would not present an excessive level of risk as the cleanup goal to be addressed by the RAP (Milestone H).

With respect to vapor intrusion, bidders shall perform the work consistent with the requirements specified in the PADEP guidance document, "Land Recycling Program Technical Guidance Manual for Vapor Intrusion into Buildings from Groundwater and Soil under Act 2", dated January 18, 2019.<sup>22</sup>

In addition, an ecological screening assessment shall be performed to determine if the site poses an unacceptable risk to ecological receptors. The screening assessment shall be conducted in accordance with Section III.I of the Pennsylvania Land Recycling Program's Technical Guidance Manual and USEPA Region 3 risk assessment screening criteria insofar as is necessary for determining any potential ecological risk.

If the exposure evaluation and risk assessment determine that the institutional controls identified above are sufficient to render the existing contamination safe under current and future site use conditions, and there are no excessive human health risks in the roadways and any excessive risks for off-property locations can be eliminated via periodic post-remedial care groundwater use surveillance (post-remedial activity and use limitation), then the bidder shall assume no remediation would be necessary and the remaining work to be addressed in the RAP (Milestone H) would include quarterly monitoring to demonstrate plume stability (Milestone I). If new land use restrictions on the subject property are required to eliminate excessive on-site risks, the land use restrictions shall be identified and proposed to be added as additional activity and use limitations to the proposed EC.

The exposure evaluation and risk assessment shall first be submitted in draft form to the Solicitor and PAUSTIF for review and comment before being finalized and incorporated into the Revised SCR/ RAP (Milestone H). Each bidder's project schedule shall provide two (2) weeks for Solicitor and PAUSTIF review of the draft document. The final report shall address comments received from the Solicitor and PAUSTIF on the draft report.

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<sup>22</sup> Should excessive vapor intrusion risks exist on-property and/or off-property requiring to be addressed via engineering controls to mitigate those risks, this work would be considered a New Condition of the fixed price agreement.

**Milestone H – Preparation, Submittal, and PADEP Approval of a Combined Revised SCR/ RAP.** Upon completing Milestones A through G described above, the selected consultant shall prepare a combined Revised SCR/ RAP in draft form for review and comment by the Solicitor and PAUSTIF. The report will be for site closure to PADEP's SSS via pathway elimination for both soils and groundwater.

The combined Revised SCR/ RAP shall contain all necessary information required under 25 PA Code §245.309, 245.310, and 245.311 and be of sufficient quality and content to reasonably expect PADEP approval. Each bidder's project schedule shall provide two (2) weeks for Solicitor and PAUSTIF review of the draft document. The final report shall address comments received from the Solicitor and PAUSTIF on the draft report before it is submitted to the PADEP for its review.

The combined report shall document, describe, and evaluate all findings provided from Milestones A through G above (and any necessary optional cost adder milestones), incorporate information and relevant findings from the previous site documentation (as necessary), and contain all necessary and appropriate figures, tabulated data, and appendices to comply with the regulatory requirements for and to obtain PADEP approval of these documents.<sup>23</sup>

The SCR shall include a conceptual site model (CSM) for the Site and its vicinity based on evaluating the results of the site characterization tasks outlined above. Information considered in developing the CSM shall consist of, but should not necessarily be limited to, stratigraphic and lithologic characteristics / relationships, including direction of bedding plan, joint, and fractures; a discussion of the type and characteristics of the released substances; groundwater elevations and flow direction; hydrogeologic controls on groundwater movement and contaminant transport; geologic cross-sections to support vertical migration of contamination; intrinsic aquifer parameters; the distribution of hydrocarbon contaminants in soil and groundwater; evaluation of potential sensitive receptors, and consideration of the contaminant fate-and-transport modeling results.

The RAP shall present and discuss the selected closure goals for the Site, discuss the exposure evaluation and risk assessment, including what institutional controls (and engineering controls, if necessary) would be implemented, and that no remediation would be necessary for groundwater. Bidders are to assume that the only work to be included in the RAP is quarterly monitoring to demonstrate plume stability.

The document shall be signed and sealed by a Professional Geologist licensed in the Commonwealth of Pennsylvania and may also require the signature and seal of a Professional Engineer registered in the Commonwealth of Pennsylvania (bidders shall refer to state licensing

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<sup>23</sup> Necessary Cost Adders may prompt adjustments to the scopes of work specified herein for any of the preceding milestones or if additional site characterization may prove necessary. Should this occur, the selected consultant should assume that any added cost involved in documenting the additional activities in the Revised SCR/ RAP shall be incorporated into the fixed costs for the adjusted/ added scope of work under the specific optional cost adder milestone.



laws to determine if the Professional Engineer seal is required based on the work performed for and documented in the combined report). The fixed-price cost shall also include addressing any PADEP comments on the combined report.

The successful bidder will be eligible to receive payment for 75% of the bid amount for Milestone H when there is proof the document has been completed and submitted to PADEP. The 25% balance will be due for reimbursement once proof has been provided that PADEP has approved the Milestone H deliverable document.

**Milestone I – Quarterly Groundwater Monitoring, Sampling, and Reporting.** Under this task, bidders shall provide a firm fixed-price to complete up to four quarters of groundwater monitoring and sampling events to demonstrate stability of the contaminant plume(s) as part of the SSS closure. Each groundwater monitoring and sampling event shall include all existing on- and off-property wells and the additional eight bedrock wells installed under Milestone B.<sup>24</sup> The conduct and results of each event shall be documented in quarterly RAPRs. If additional quarterly events would be needed beyond four quarters, up to an additional four quarters are incorporated in the Remediation Agreement as Optional Cost Adder Milestone I.<sup>25</sup> Consultant shall seek and obtain written approval from Solicitor and PAUSTIF, providing an explanation for why the additional quarterly events are necessary, to continue with quarterly groundwater monitoring/sampling events (Optional Cost Adder Milestone I). During the quarterly events, each of the monitoring wells shall be monitored, purged, and sampled as described in Milestone A.<sup>26</sup>

The RAPRs describing the sampling methods and results will be provided to the PADEP on a quarterly basis and within 30 days of the end of the current quarter. The RAPRs shall be prepared as described in Milestone A.

PAUSTIF will only reimburse for the necessary quarterly groundwater sampling / reporting events actually completed under this milestone (e.g., this milestone shall be considered completed with the initiation of Milestone J). Each RAPR shall be sealed by a Professional Geologist and / or Professional Engineer registered in the Commonwealth of Pennsylvania (bidders shall refer to state licensing laws to determine which seals are required based on the work performed and documented in the RAPRs).

**Milestone J – Plume Stability Assessment.** Under this task, bidders shall provide a fixed-price cost and describe their approach in detail for evaluating the groundwater data and demonstrating contaminant plume stability. This work is anticipated to include evaluating contaminant trends in individual wells and performing both a quantitative (e.g., contaminant fate-and-transport model,

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<sup>24</sup> The costs for the monitoring and sampling of any additional monitoring wells installed as per Optional Cost Adder Milestone B will be handled under Optional Cost Adder Milestone C.

<sup>25</sup> If it becomes evident anytime during the groundwater plume stability demonstration (initiated subsequent to completing Milestone H) that plume stability will not be successful within the four quarters, and up to four additional quarters (Optional Cost Adder Milestone I), this will represent a New Condition under the contract.

<sup>26</sup> Each bidder's approach to implementing Milestone I shall clearly identify the number of sampling events, number of wells / samples per event, well purging and sampling method(s), QA/QC measures, analytes, purge water management methods, and other key assumptions affecting the bid price.

statistical analysis) and qualitative (e.g., chronological contaminant extent maps, trend lines, etc.) analysis to address all dissolved-phase constituents whose concentrations exceed the residential used aquifer SHS point of reference.

Bid responses will be expected to describe how the preponderance of data would be used to assess the nature of overall plume stability with the recognition there may be localized perturbation of constituent concentrations (e.g., due to groundwater fluctuations in the plume core) that may or may not be a reflection of the stability of the plume as a whole. Bidders are expected to provide a description of how plume stability will be evaluated qualitatively (e.g., using a sequence of plume limit contours chronologically over the post-remedial period to evaluate if the plume generally remains in the same area over time). Additionally, if quantitative statistics are proposed to be used by bidders (e.g., Mann-Kendall) to supplement a qualitative evaluation, bidders shall describe these techniques and how any difference between qualitative analysis and quantitative analysis would be resolved.

**Milestone K – Preparation, Submission, and PADEP Approval of a Remedial Action Completion Report (RACR).** Under this milestone, the bidder shall provide a fixed-price cost to prepare a draft and final RACR following the completion of Milestones I and J, and any applicable related optional cost adder milestones. The RACR shall be prepared in accordance with Section 245.313, and at a minimum, the RACR shall provide the details for Milestones A through G, I, and J, and any optional cost adder milestones. The RACR shall also discuss the selected closure criteria for the site, provide proof of soil attainment and groundwater plume(s) stability, updating exposure evaluation and risk assessment, and request permanent closure for the site for the current release under an Act 2 Relief of Liability (ROL). The project schedule should allow two (2) weeks for Solicitor and PAUSTIF review of the draft RACR before a final version is submitted to the PADEP. The selected consultant shall then prepare and submit the final RACR to the PADEP in accordance with Section 245.313, which shall be sealed by a Professional Geologist and / or Professional Engineer registered in the Commonwealth of Pennsylvania (bidders shall refer to state licensing laws to determine which seals are required based on the work performed for and documented in the RACR). The fixed-price cost shall also include addressing any PADEP comments on the RACR.

The successful bidder will be eligible to receive payment for 75% of the bid amount for Milestone K when there is proof the document has been completed and submitted to PADEP. The 25% balance will be due for reimbursement once proof has been provided that PADEP has approved the Milestone K deliverable document.

**Milestone L – Finalizing/ Filing of EC.** Under this task, the bidder shall describe and provide a fixed-price bid for finalizing and filing an EC for the Northwest Bank property. The fixed-price shall include all reasonable and necessary activities and required fees to finalize and file the EC for the subject property with the local court house and other required entities. The successful bidder will be responsible for coordinating this work with the impacted property owner(s) and their legal counsel(s). Legal fees are not to be included in bid costs. PAUSTIF reimbursement of Client and/or third-party legal fees will be considered outside of the executed Remediation Agreement.

Bidders are to assume that there would not be the need for any off-property ECs. If it is determined that one or more additional off-property ECs are necessary, the necessary work to complete the EC(s) would be handled outside of the Remediation Agreement.

**Milestone M – Site Closure / Restoration Activities.** Under this milestone, the bidder shall describe and provide a fixed-price bid for properly closing the site, including: proper disposal of any remaining wastes; in-place abandonment of all on- and off-property monitoring wells and vapor monitoring points consistent with PADEP guidelines; well head removals; and re-vegetation, concrete / asphalt repairs, as necessary, for areas that have been disturbed by site characterization activities. This task shall also include photo–documenting the site restoration work and completion / submittal of the well abandonment forms. Copies of the photographs and forms shall be provided for the Solicitor’s files.

If additional monitoring wells are installed as part of Optional Cost Adder Milestone B, the abandonment of these additional wells will be handled under Optional Cost Adder Milestone M. Written email approval from Solicitor and PAUSTIF will be required before beginning the work.

Each bid shall specify the number of days for initiating Milestone M following approval of the RACR by PADEP. Site closure and restoration work shall be conducted in accordance with standard industry practices and applicable laws, regulations, guidance, and PADEP directives. Conducting the monitoring well and vapor monitoring point abandonment and other site restoration activities shall be coordinated with the Solicitor.

### **Optional Cost Adder Milestones**

A number of optional cost adders may come into play at this site. Therefore, bidders shall provide unit pricing for these contingencies outside the base RFB scope. Note that before any work associated with these unit cost adders is conducted, the selected consultant shall provide a written request and detailed technical explanation for PAUSTIF / its technical agent for review and consideration ahead of any written authorization to proceed.

**Optional Cost Adder Milestone A – Continue Quarterly Groundwater Monitoring, Sampling & Reporting.** Under this milestone, bidders shall provide the Solicitor and PAUSTIF with a firm quarterly fixed-price unit cost that would include the quarterly groundwater monitoring, sampling / analysis of the existing on- and off-property monitoring wells; and reporting beyond the three quarters specified in Milestone A. The SOW for this unit cost adder milestone should follow Milestone A guidelines. Each bidder must include their rationale for needing to implement this optional cost adder milestone.

**Optional Cost Adder Milestone B – Installation of Bedrock Monitoring Wells.** Under this optional milestone, bidders shall provide the following fixed-price unit costs for installation of

additional horizontal and/or vertical delineation bedrock monitoring wells.<sup>27</sup> The scope of work for this cost adder shall follow Milestone B guidelines; including the assumption regarding drilling footage for additional horizontal delineation (assume 40-foot well depth), and further vertical delineation (assume 70-foot well depth). The unit prices under Milestone B for excess drilling shall also apply to this cost adder milestone.

- **Optional Cost Adder Milestone B1** – Unit cost for boring advancement and installation of one additional horizontal delineation bedrock monitoring well to a depth of 40 feet during a separate drilling mobilization following completion of the original Milestone B work. The fixed cost shall be inclusive of all labor, equipment, materials, utility clearance, subcontractors, waste handling / disposal, creating boring log/well construction details, well development, surveying, and reporting.
- **Optional Cost Adder Milestone B2** – Unit cost for boring advancement and installation of one additional vertical delineation bedrock monitoring well to a depth of 70 feet during a separate drilling mobilization following completion of the original Milestone B work. The fixed cost shall be inclusive of all labor, equipment, materials, utility clearance, subcontractors, waste handling / disposal, creating boring log/well construction details, well development, surveying, and reporting.
- **Optional Cost Adder Milestone B3** – Unit cost for boring advancement and installation of one additional horizontal delineation bedrock monitoring well to a depth of 40 feet during a Milestone B1 or Milestone B2 drilling mobilization. The fixed cost shall be inclusive of all labor, equipment, materials, utility clearance, subcontractors, waste handling / disposal, creating boring log/well construction details, well development, surveying, and reporting.
- **Optional Cost Adder Milestone B4** – Unit cost for boring advancement and installation of one additional vertical delineation bedrock monitoring well to a depth of 70 feet during a Milestone B1 or B2 drilling mobilization. The fixed cost shall be inclusive of all labor, equipment, materials, utility clearance, subcontractors, waste handling / disposal, creating boring log/well construction details, well development, surveying, and reporting.
- **Optional Cost Adder Milestone B5** – Unit cost for negotiating and securing access to a off-property location where needed to implement the additional characterization. Unit cost shall assume that locating/ making contact with the property owner, providing property owner with access agreement, and PADEP involvement (as necessary) is to be included within the fixed price for this cost adder milestone for which access is necessary.<sup>28</sup> Access attempts must be documented with a copy of a letter requesting access along with a draft access agreement sent to property owner via certified mail.

**Optional Cost Adder Milestone C – Groundwater Monitoring and Sampling.** Under this optional milestone, bidders shall provide a unit cost to complete an additional groundwater

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<sup>27</sup> If it becomes evident anytime during the site characterization work in the sampling of bedrock wells that additional vertical delineation is necessary beyond 70 feet, this will represent a New Condition under the contract.

<sup>28</sup> If after performing the work under Optional Cost Adder B5, access still has not been secured, additional work to secure access will be handled outside the Remediation Agreement.

monitoring and sampling event during the site characterization activities. The scope of work for this cost adder should follow Milestone C.

- **Optional Cost Adder Milestone C1** – Unit cost for completing the initial groundwater monitoring and sampling event for an additional horizontal delineation bedrock well to a depth of 40 feet installed under Optional Cost Adder Milestone B. The unit cost shall be inclusive of all labor, equipment, subcontractors, materials, laboratory analysis, QA/QC samples, waste handling/disposal, and reporting.
- **Optional Cost Adder Milestone C2** – Unit cost for completing the initial groundwater monitoring and sampling event for an additional vertical delineation bedrock well to a depth of 70 feet installed under Optional Cost Adder Milestone B. The unit cost shall be inclusive of all labor, equipment, subcontractors, materials, laboratory analysis, QA/QC samples, waste handling/disposal, and reporting.
- **Optional Cost Adder Milestone C3** – Unit cost for monitoring and sampling one additional or fewer horizontal delineation bedrock monitoring well to a depth of 37 or 40 feet during Milestones A or I quarterly monitoring and sampling event. The unit cost shall be inclusive of all labor, equipment, subcontractors, materials, laboratory analysis, waste handling/disposal, and reporting.
- **Optional Cost Adder Milestone C4** – Unit cost for monitoring and sampling one additional or fewer vertical delineation bedrock monitoring well to a depth of 70 feet during Milestones A or I quarterly monitoring and sampling event. The unit cost shall be inclusive of all labor, equipment, subcontractors, materials, laboratory analysis, waste handling/disposal, and reporting.

**Optional Cost Adder Milestone F – Installation and Sampling of Soil Vapor Sampling Points.** Under this optional milestone, bidders shall provide the following fixed price unit costs for the installation and sampling of additional soil vapor sampling points. The scope of work for the sampling of these soil vapor points shall follow Milestone F guidelines.

- **Optional Cost Adder Milestone F1** – Unit cost for boring advancement and installation of one additional soil vapor sampling point during a separate drilling mobilization following completion of the Milestone B work. Bidders shall assume an installation depth less than 10 feet. The fixed cost shall be inclusive of all labor, equipment, materials, utility clearance, subcontractors, waste handling / disposal, creating boring log/ construction details, surveying, and reporting.
- **Optional Cost Adder Milestone F2** – Unit cost for the sampling of one additional soil vapor sampling point installed under Optional Cost Adder Milestone F1. The fixed cost shall be inclusive of all labor, equipment, materials, subcontractors, QA/QC, laboratory analysis, waste handling / disposal, and reporting.

**Optional Cost Adder Milestone I – Quarterly Groundwater Monitoring, Sampling, and Reporting.** This optional milestone may be necessary if stability of the contaminant plume(s) is

not adequately demonstrated to PADEP's satisfaction during the base work scope of four quarters necessitating further monitoring. The scope of work for this optional cost adder shall follow Milestone I guidelines.<sup>29</sup> Along with providing a fixed-price unit cost for conducting one additional monitoring sampling and reporting event, each bid must include the rationale for needing to implement this optional cost adder milestone.

**Optional Cost Adder Milestone M – Additional Site Closure / Restoration Activities.** A fixed unit cost shall be provided for the in-place abandonment of additional bedrock monitoring wells and soil vapor sampling points installed under Optional Cost Adder Milestones B and F. The scope of work for this cost adder should follow the details provided in Milestone M.

- **Optional Cost Adder Milestone M1** – Unit cost for the abandonment of one additional horizontal delineation bedrock monitoring well to a depth of 40 to be performed during the same mobilization to complete the Milestone M work. The fixed cost shall be inclusive of all labor, equipment, utility clearance, subcontractors, waste handling / disposal, surface restoration, well abandonment form, and photo-documenting.
- **Optional Cost Adder Milestone M2** – Unit cost for the abandonment of one additional vertical delineation bedrock monitoring well to a depth of 70 to be performed during the same mobilization to complete the Milestone M work. The fixed cost shall be inclusive of all labor, equipment, utility clearance, subcontractors, waste handling / disposal, surface restoration, well abandonment form, and photo-documenting.
- **Optional Cost Adder Milestone M3** – Unit cost for the abandonment of one additional soil vapor monitoring point to be performed during the same mobilization to complete the Milestone M work. The fixed cost shall be inclusive of all labor, equipment, utility clearance, subcontractors, waste handling / disposal, surface restoration, and photo-documenting.

### **Additional Information**

In order to facilitate PAUSTIF's review and reimbursement of invoices submitted under this claim, the Solicitor requires that project costs be invoiced by the milestone identified in the executed Remediation Agreement. Actual milestone payments will occur only after successful and documented completion of the work defined for each milestone. The selected consultant will perform only those tasks/milestones that are necessary to reach the Objective identified in this RFB. Selected consultant will not perform, invoice, or be reimbursed for any unnecessary work completed under a milestone.

Any "new conditions", as defined in Attachment 2, arising during the execution of the SOW for any of the milestones may result in termination of or amendments to the Remediation Agreement. Modifications to the executed Remediation Agreement will require the written approval of the Solicitor and the PAUSTIF (for funding consideration). PADEP approval may also be required.

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<sup>29</sup> The costs for the monitoring and sampling of any additional monitoring wells installed as per Optional Cost Adder Milestone B will be handled under Optional Cost Adder Milestone C.

## List of Attachments

1. Bid Submission Coversheet
2. Remediation Agreement
3. Required Responses Submission Form
4. Bid Cost Submission Form
5. Site Information/Historic Documents
  - a. Figures 1 and 2
  - b. 2018 RAPRs
  - c. 2019 RAPRs
  - d. 2020 RAPRs
  - e. 2021 RAPRs
  - f. 2022 RAPRs
  - g. October 2010 RAP
  - h. July 2010 SCR Plus
  - i. October 2009 SCR
  - j. April 2009 UST Closure Report